Methods of Contextualising

Disability Justice & Accessibility

Grpoup 1a

Joyful Experiences

Jianing Wang (Jade)
Xinyu Wang (Anari)
Yi Wu (Yi)

18 Feb
17 Pages

Mind Map

Group Metting

When making,
We considered this space...

- Is it a public or semi-public space?
- Is it interactive and multi-sensory?
- What are the pleasure points of the space?
- Are there intervention points that can be optimized?

Space

London zoo
Botanical Gardens
Party
AutoFoto
London eye
Opera
Handmade Workshop
Material Store

Summary

Through mind mapping, we extracted some places with joyful experiences (such as London Zoo, London Eye, Photoboth) and discussed how these places gave us joyful experiences through social interaction, sensory experience or sense of achievement. At the same time, we also marked the social anxiety, visual impairment, language barrier and other possible obstacles that may appear in these places. In the next step, we will conduct a more detailed investigation on these places.

A

Space Selection

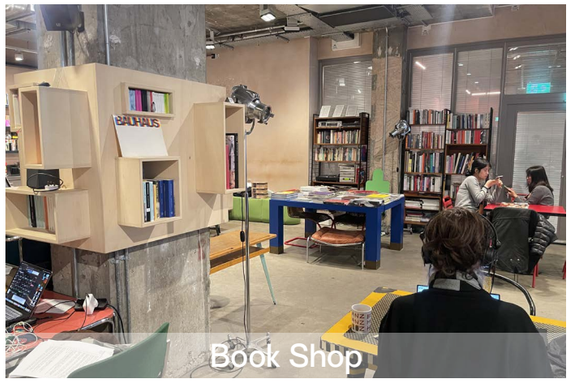
London Zoo

Joyful Experiences

- Explore Nature
- Feeding Experience

Main obstacle

- Sensory Overload
- One-way Information Transfer



Book Shop

Joyful Experiences

- Artistic Exploration
- Community Belonging

Main obstacle

- Social Phobia
- Cognitive Threshold

London Eye

Joyful Experiences

- Visual Wonders
- Landmark Ritual

Main obstacle

- Visual Dependency
- Multisensory Deficit

Photo Booth

Joyful Experiences

- Sense of Anticipation
- Sense of Surprise

Main obstacle

- Social Phobia
- Standardized Aesthetic Hegemony

A

Thinking

How can we make **places** more inclusive/diverse through our **interventions**?

Main Questions:

1. How do the atmosphere, emotions, and energy of a space convey to people and bring them a happy experience?

2. How can the emotional state (joyful) of a place be conveyed to the audience to the greatest extent possible to enhance the inclusiveness of the space?

Option 1

London Eye

Find :

1. The London Eye is highly dependent on vision, and visually impaired people cannot directly "see" the scenery.

2. The structure of the glass cabin cannot provide tactile or sound feedback, and users cannot "feel" changes outside.

3. There is no dedicated tactile map or audio guide to let them understand the surrounding landmarks.

Site interventions for visitors with visual impairments

Intervention options:

1. Dynamic tactile map: making the London skyline "touchable"?

2. Audio landscape description: For example, where the telescope (as the eyes of the visually impaired) points, the corresponding audio explanation will appear.

Option 2

Photo Both

Find :

1. Before shooting, you need to see the position of the lens and adjust the seat height, and there is no voice prompt.

2. There is no shutter prompt when shooting, which often causes the first photo to be wasted.

3. When socializing after shooting: patients have difficulty recognizing themselves and participating in others' evaluations (social disconnection).

Intervention for people with facial recognition impairment

Intervention options:

1. System: Automatically lock the most easily recognizable part for face blindness patients, replacing the original facial elements and proportions

2. Camera parts: Change the filter and add artistic effects to meet the recognition logic of face blindness patients

Option 1 London Eye

Y

Plan

Main obstacles

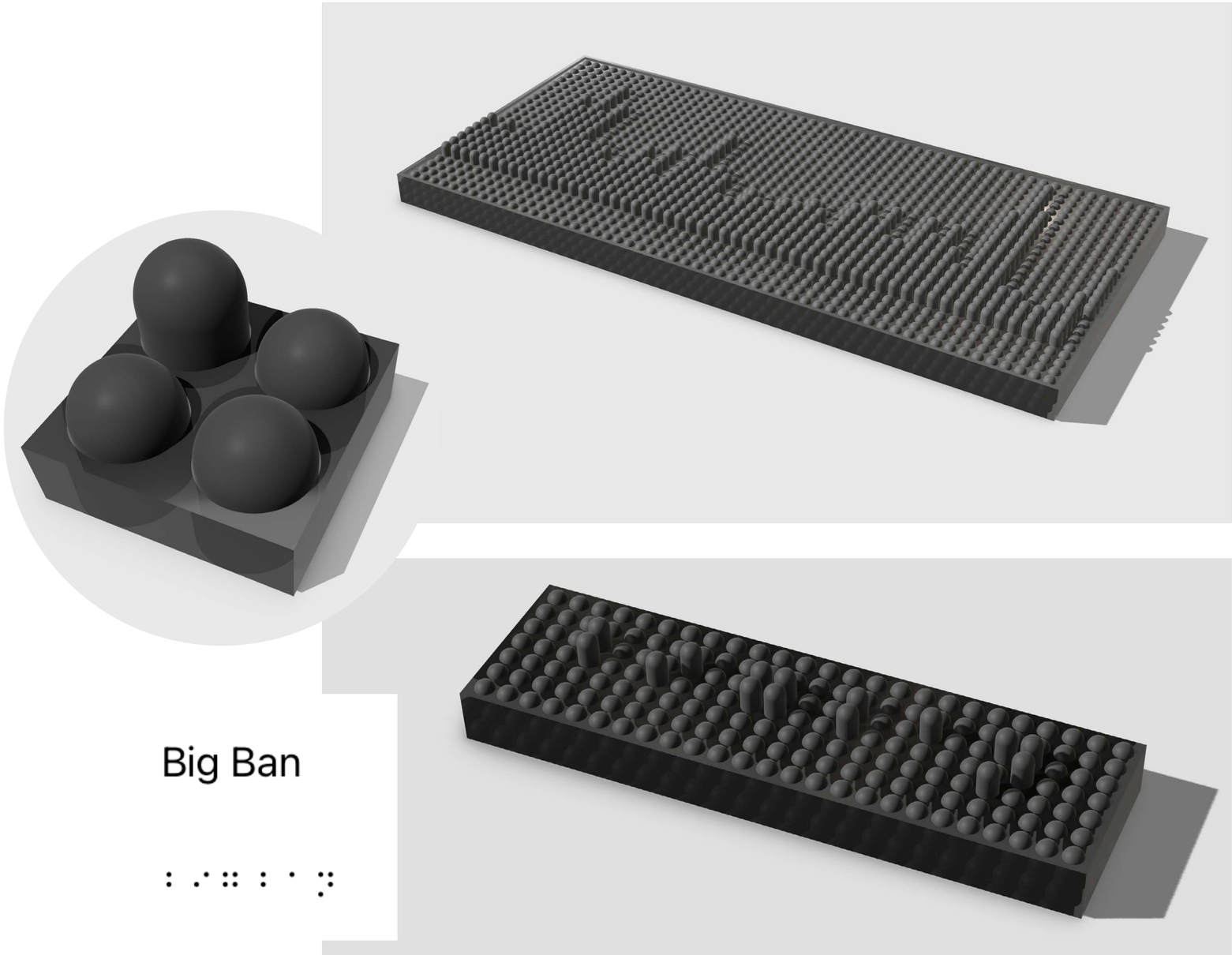
Since there is no electronic voice in the Ferris wheel cabin, it is impossible to quickly present exciting viewing introduction content. Therefore, viewers may lose the fun of appreciating the space landscape and the fun of viewing the external landscape.

Intervention plan:

Add a touchable map that changes with the scenery outside the window (using touch instead of vision)

Based on the touchability, the space is more inclusive to all kinds of people

Touchable Map



Option 2 PhotoBoth

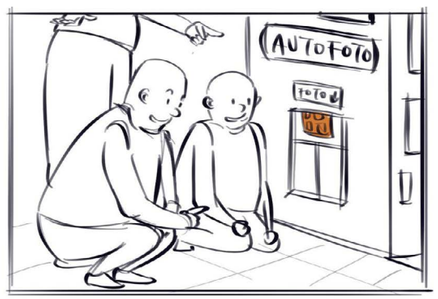
A

Research

On Site

Tate Modern

How does this space make people feel joyful?



Wait

- for the shutter
- for the photo to print

Sociality

- Discuss photos

Summary

The process of taking photos may affect the experience of people with facial recognition impairment. They have difficulty combining facial features into a complete face to remember a person, so the face they see is different from that of ordinary people.

When others appreciate or discuss the quality of photos, due to the difficulty in recognizing faces, Prosopagnosia may not be able to follow the topic and join the conversation, which will reduce the fun of taking photos.

Main obstacles:

!1

Prosopagnosia's "face recognition dilemma":

Unable to integrate facial features into a whole, can only rely on non-standard features such as hairstyle/accessories for recognition.

!2

"Social Dilemma" in Photo Discussion:

Facial recognition disorder caused by Prosopagnosia makes it difficult for patients to recognize people in photos, thus affecting their evaluation of photos and social participation.

Prosopagnosia

Theoretical framework study

Prosopagnosia, also known as face blindness, is the loss of the ability to recognize the identity of faces, so that all faces seem strange, including those that have been known for a long time and those that have just been known.(Davies-Thompson et al.， 2014).[1]

What prosopagnosia sees?

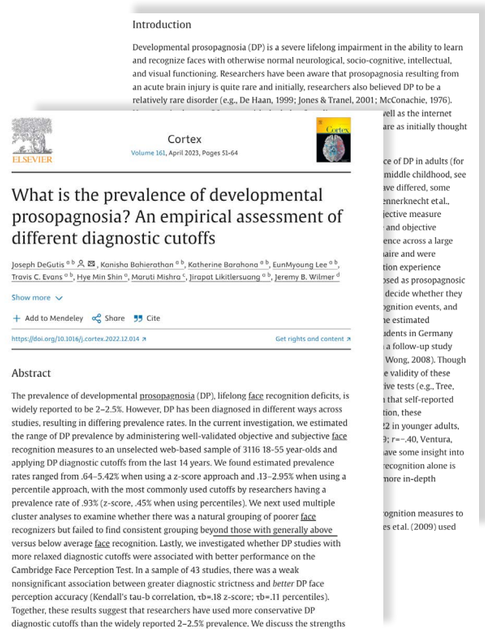
Normally

With prosopagnosia

Figure 00 https://news.yorku.ca/2020/12/21/feel-like-youre-suffering-from-face-blindness-research-shows-masks-change-the-way-we-process-faces/

For example, when we put a mask on the face of the person we are observing (so that only the eyes can be seen), it is almost the same situation as people with face blindness usually are.

How common is this condition?



Introduction

Developmental prosopagnosia (DP) is a severe lifelong impairment in the ability to learn and recognize faces with otherwise normal neurological, socio-cognitive, intellectual, and visual functioning. Researchers have been aware that prosopagnosia resulting from an acute brain injury is quite rare and initially, researchers also believed DP to be a relatively rare disorder (e.g., De Haan, 1999; Jones & Tranel, 2001; McConachie, 1976).

Cortex

Volume 161, April 2023, Pages 51-64

What is the prevalence of developmental prosopagnosia? An empirical assessment of different diagnostic cutoffs

Joseph DeGutis, Kanisha Bahierathan, Katherine Barahona, EunMyoung Lee, Travis C. Evans, Hye Min Shin, Maruti Mishra, Jirapat Likitlersuang, Jeremy B. Wilmer

Show more

Add to Mendeley Share Cite

https://doi.org/10.1016/j.cortex.2022.12.014 Get rights and content

Abstract

The prevalence of developmental prosopagnosia (DP), lifelong face recognition deficits, is widely reported to be 2–2.5%. However, DP has been diagnosed in different ways across studies, resulting in differing prevalence rates. In the current investigation, we estimated the range of DP prevalence by administering well-validated objective and subjective face recognition measures to an unselected web-based sample of 3116 18-55 year-olds and applying DP diagnostic cutoffs from the last 14 years. We found estimated prevalence rates ranged from .64–5.42% when using a z-score approach and .13–2.95% when using a percentile approach, with the most commonly used cutoffs by researchers having a prevalence rate of .93% (z-score, .45% when using percentiles). We next used multiple cluster analyses to examine whether there was a natural grouping of poorer face recognizers but failed to find consistent grouping beyond those with generally above versus below average face recognition. Lastly, we investigated whether DP studies with more relaxed diagnostic cutoffs were associated with better performance on the Cambridge Face Perception Test. In a sample of 43 studies, there was a weak nonsignificant association between greater diagnostic strictness and better DP face perception accuracy (Kendall's tau-b correlation, τb=.18 z-score; τb=.11 percentiles). Together, these results suggest that researchers have used more conservative DP diagnostic cutoffs than the widely reported 2–2.5% prevalence. We discuss the strengths

https://hms.harvard.edu/news/how-common-face-blindness

《What is the prevalence of developmental prosopagnosia? An empirical assessment of different diagnostic cutoffs》 2023

「A study on the common conditions of people with face blindness」[2]

as many as one in 33 people (3.08%) may meet the criteria for face blindness（prosopagnosia）.

A new study from Harvard Medical School suggests that 1 in 33 people (3.08%) may qualify as face blindness, or prosopagnosia. The research team says this means that more than 10 million Americans suffer from face blindness in the United States alone.

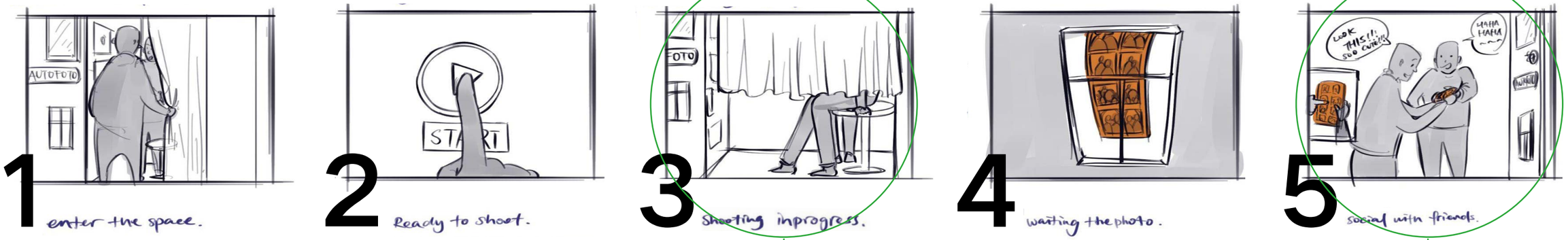
Summarize

Our research focuses on prosopagnosia (commonly known as "face blindness"), and mainly includes two parts: simulation experiments on normal people and investigations on prosopagnosia. One of our core links is the reception and processing of visual information, and face recognition is an important visual task. **If a person's face recognition ability is impaired, how can he perceive and understand visual information? (Our topic)**

1- Jodie Davies-Thompson defines and classifies prosopagnosia in Acquired prosopagnosia: structural basis and processing impairments.
2- A study conducted by Harvard Medical School on the commonness of prosopagnosia in 2023 showed that the number of prosopagnosia patients in the United States is as high as 3.08%

Photoboth Flowchart

The AUTOFOTO shooting process is divided into five stages: entering the shooting space, starting shooting, shooting, waiting for photos to be printed, obtaining photos and discussing. This is used to analyze the key links suitable for intervention and determine the optimization plan.



Plan 1.1&1.2

Intervention Plan:

Computers automatically optimize facial features in photos to make them more consistent with the cognitive style of people with facial recognition disorders, thereby improving their recognition ability and understanding.

Plan 2

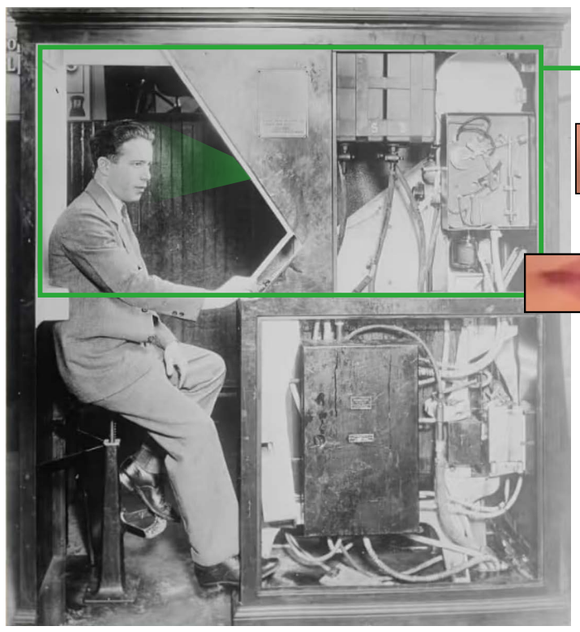
Intervention plan:

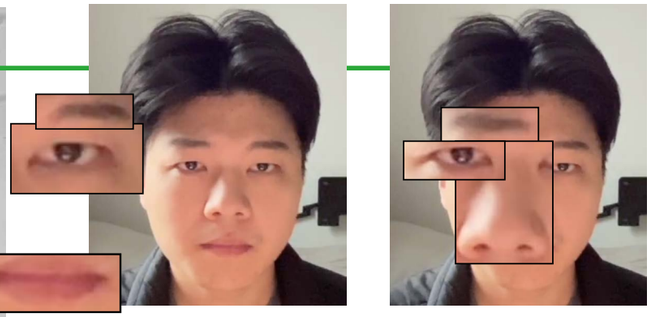
Through special glasses, people with facial recognition impairment can view facial photos in the same way as ordinary people, thus improving their recognition ability and sense of social participation.

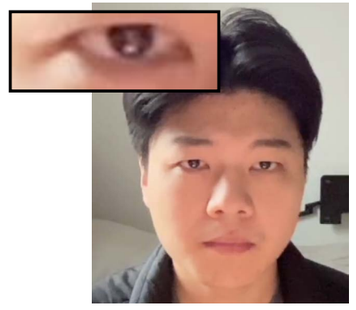
J

Plan 1 Overall

After entering the shooting space, the computer system will automatically extract the key facial features (highlights) in the photo, highlighting the most important facial features, helping people with facial recognition disabilities capture and recognize people's faces more quickly.



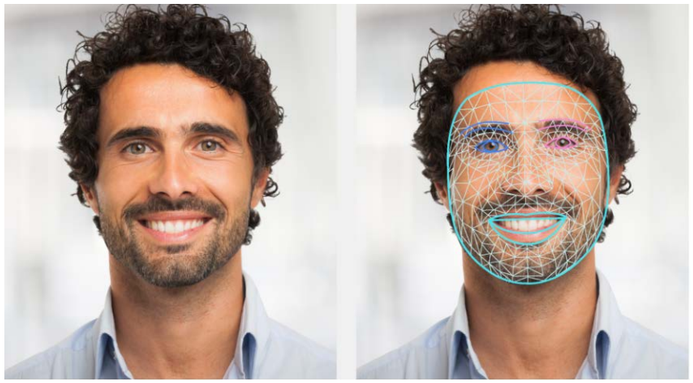




Plan 1

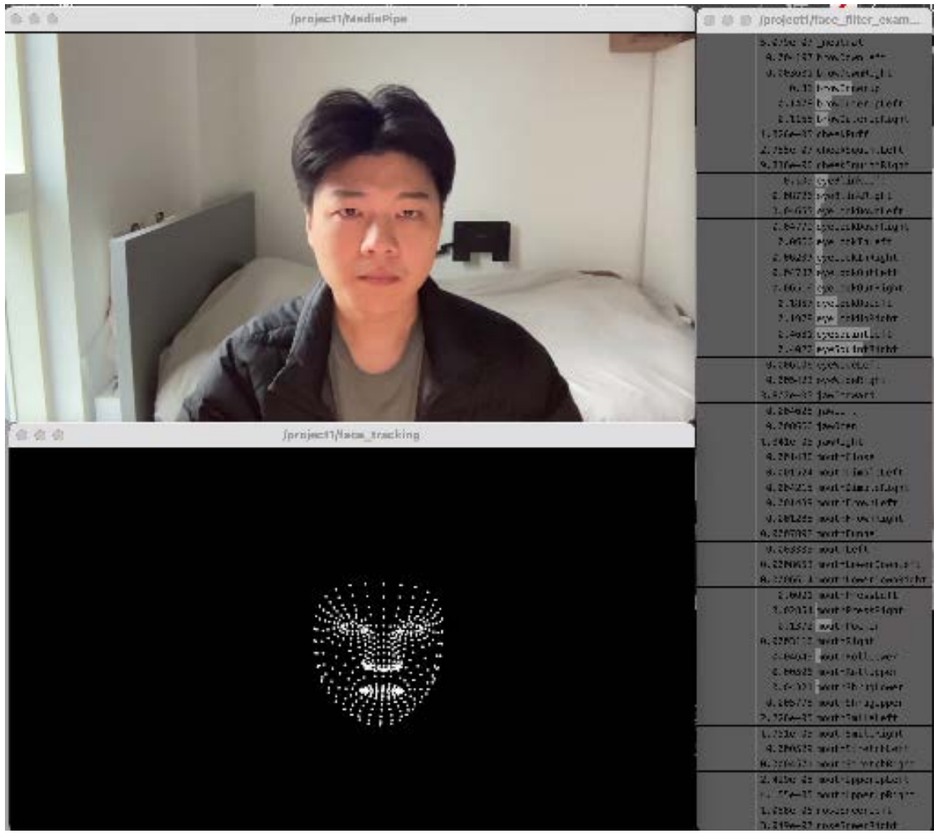
Technical principle

Automatically lock the most easily recognizable part for face blindness patients, replacing the original facial elements and proportions

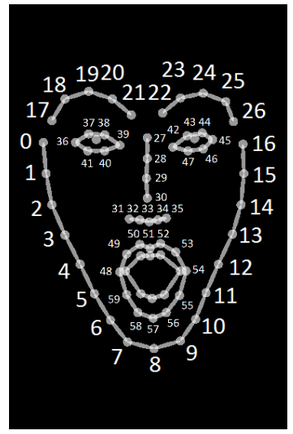


MediaPipe Model

I used the MediaPipe Face Landmarker task[1] for face detection in this plan, which can detect 478 feature points in the face in real time, and it can effectively recognize 52 expressions. Then different values are given, which are the main reference data when I make plan samples.



In this video, you can see that my facial expressions and positions can be tracked in real time when I use this method.



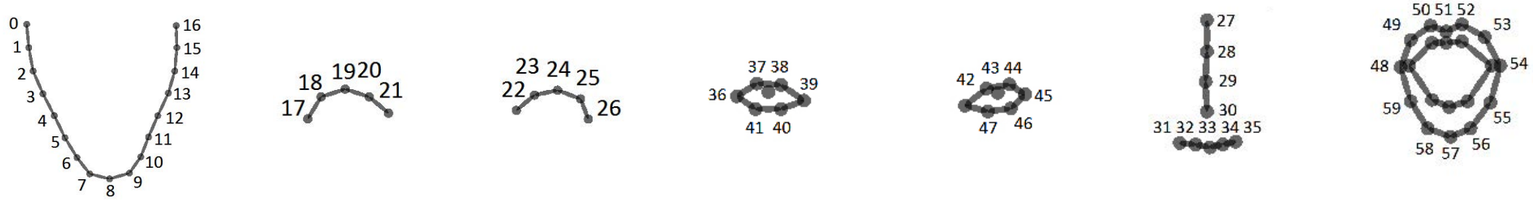
1. MediaPipe Face Landmark Task can detect facial landmarks and facial expressions in images/videos.

Plan 1

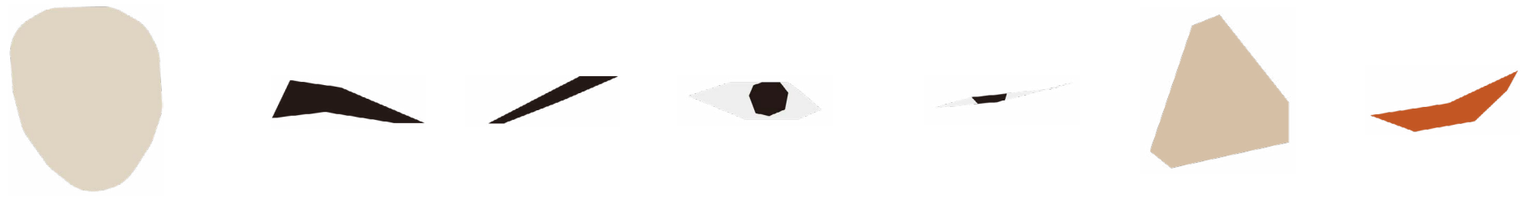
Graphic Replacement

Using geometric shapes (such as rectangles, circles, etc.) to separate different facial features/areas and giving each area a different color or texture can help people with prosopagnosia understand the structure of the face more easily and increase the visual impact of facial features. This can help patients identify different facial elements more easily.

Facial features separation

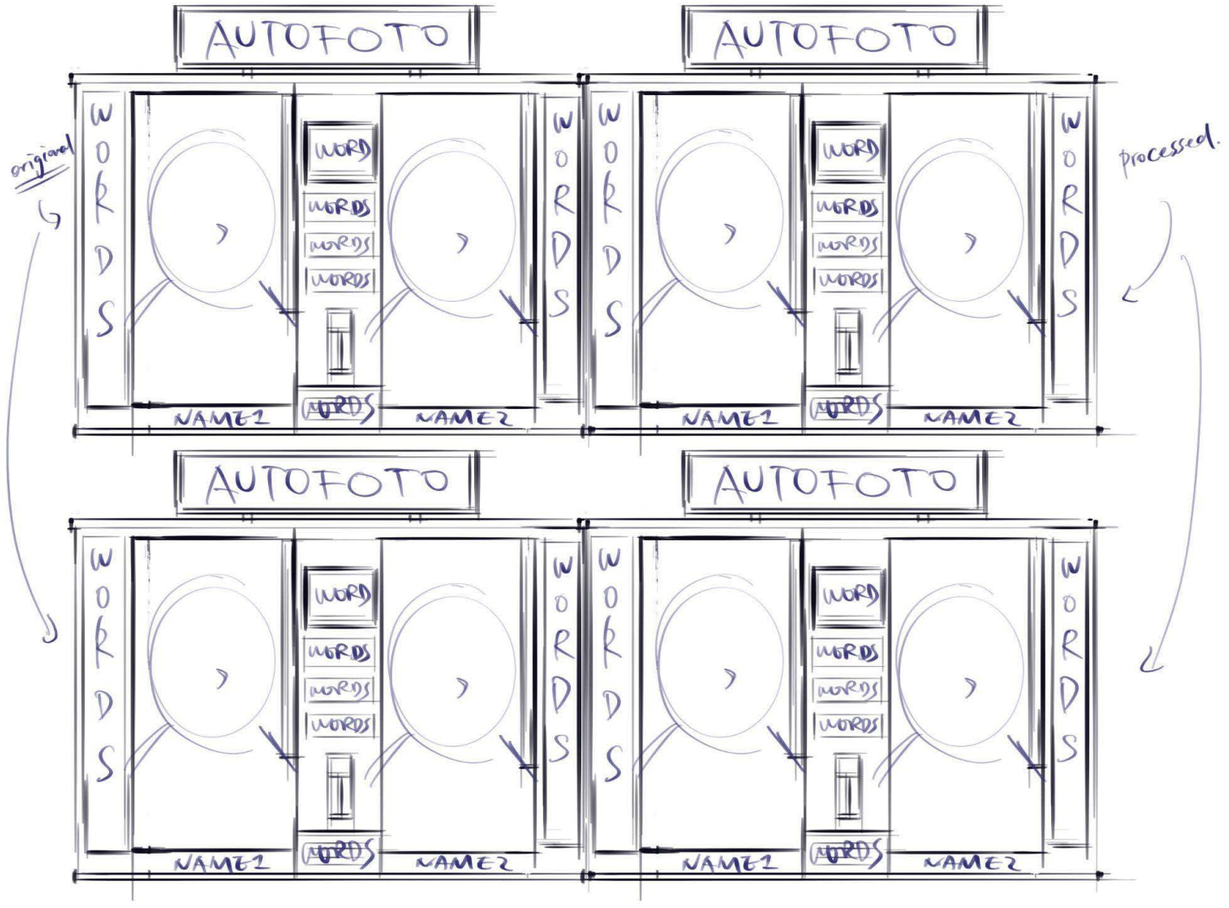


Database（Grapgic/image）



Plan 1.2 Overall

The solution focuses on optimizing the final printed photo effect, aiming to enhance the social participation of prosopagnosic patients after obtaining the photos, so that they can better enjoy the joy of interaction. The finished photo will contain both the original photo and the specially processed version to reduce the communication barriers between prosopagnosic patients and ordinary people, and enhance their recognition ability and sense of social integration.

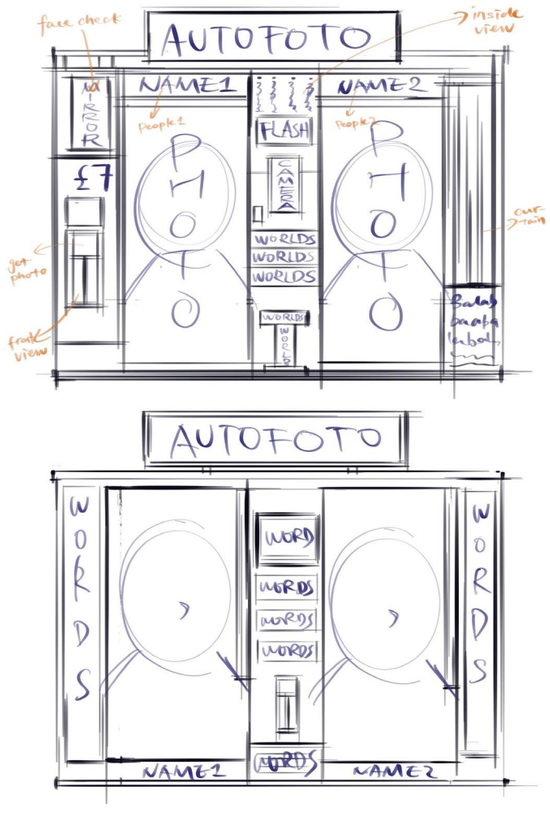


Printable Version

A

Plan 1.2 Overall

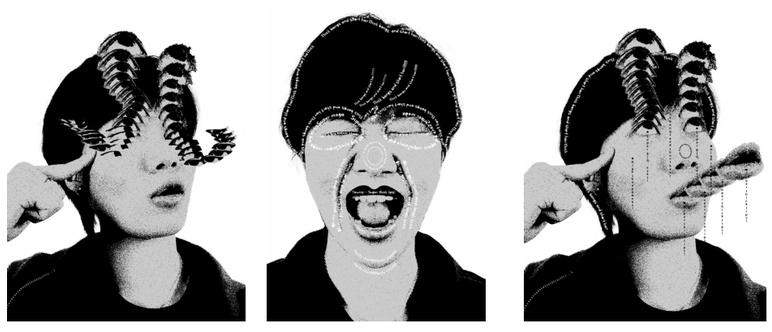
Layout



The layout design of the draft refers to the appearance structure of AUTOFOTO, and the outer frame uses its graphic design elements. Two photos are placed in the central area, and text descriptions are added in the frame to enhance the understanding of the picture and help prosopagnosic patients identify the person information more clearly.

Working Process

Visual Style



Style 1

Movement trajectory of the facial features

Style 2

Text Description

Style 3

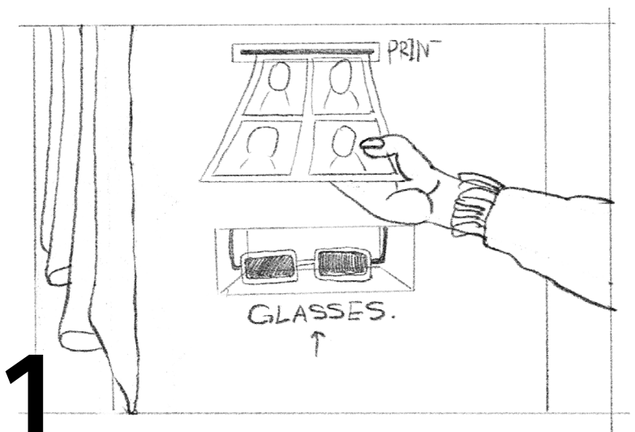
Movement trajectory of the facial features +Text Description

Outcome Layout

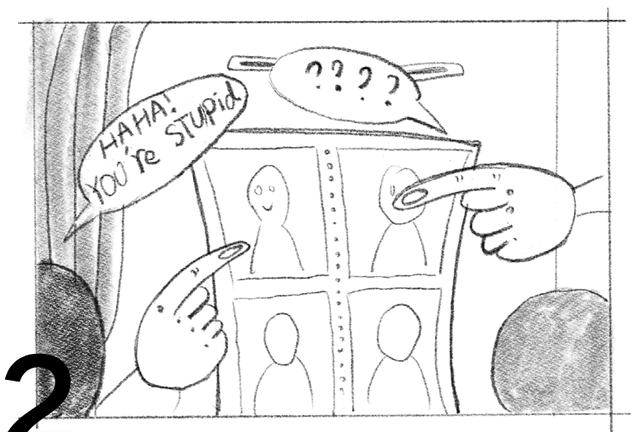
A

Plan 2 Overall

The core of the program is to design a special pair of glasses that enable people with prosopagnosia to directly identify people in photos, thereby improving their social interaction experience and enhancing their communication and participation with ordinary people.

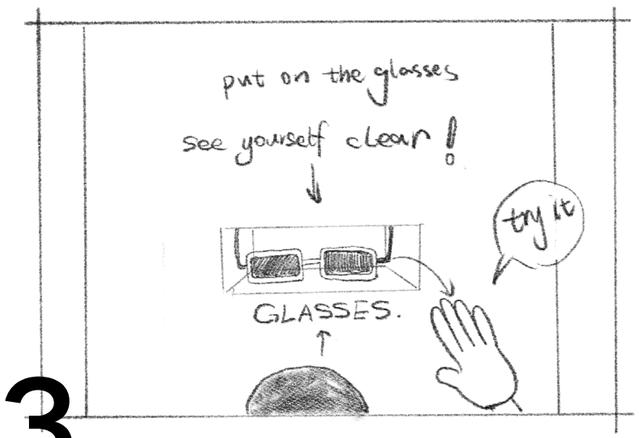


1 Get photos/"Glasses"

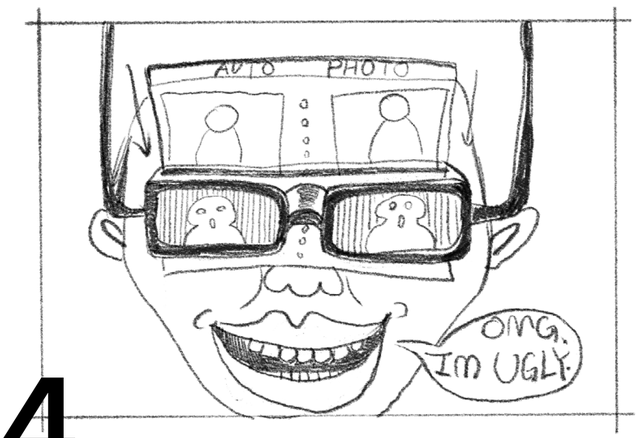


2 Social communication /Discussion photos

Step 5 social with friends.



3 Try using "glasses"



4 Feel the clear face seen through the "glasses"